Metastatic tumours facilitated by hypoxic tumour micro-environments

Fact Sheet

Project Information

METOXIA
Grant agreement ID: 222741

Funded under
FP7-HEALTH

Project website

Overall budget
€ 16 038 623,20

EU contribution
€ 11 998 300

Status
Closed project

Start date
1 February 2009

End date
31 July 2014

Coordinated by
UNIVERSITETET I OSLO
Norway

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Objective
Recent research suggests that the hypoxic micro-environment of tumours is one of the major drivers of metastatic spread of cancer. Furthermore, hypoxic tumour micro-environments may result in treatment resistance of cancer cells, therefore causing a double effect of reducing the potential of a successful treatment of the cancer patient. This project seeks to clarify the roles and functions of the hypoxic tumour micro-environment in relation to the survival of solid tumours likely to metastasise. We will gain new knowledge about molecular mechanisms behind hypoxia-driven metastasis, like the epithelial-mesenchymal transition (EMT) by several routes: (a): mechanisms related to cell growth- and cell proliferation (UPR, mTOR, CA9, HIF, Notch, and VHL), (b): angiogenesis and lymphangiogenesis, (c): metabolism and pH-regulation (d): the handling of reactive oxygen species (ROS). We will generate animal models for the study of the role of hypoxia in metastases and develop a biopsy-bank of tumour and blood samples for molecular diagnostic studies. We will identify and develop advanced imaging techniques and biomarkers and identify micro-metastases in bone marrow of patients to assist in the selection of appropriate stratification of the actual primary tumour’s and metastases’ micro-environmental conditions. We will also create a machine-learning based classifier of tumour hypoxia. The consortium has the necessary expertise to perform proof-of-principle clinical testing of new treatment strategies. We will thus perform clinical tests of new drugs developed to attack the regulatory mechanisms selected from the pre-clinical work and possible synergisms of combined treatments. We will also test new radiotherapy strategies for treatment of primary as well as metastatic tumours. Cancer types chosen for clinical studies are non-small-cell lung carcinoma, squamous cell carcinoma of the larynx, prostate cancer, primary breast cancer and rectal cancer.

Field of science

/medical and health sciences/clinical medicine/oncology/cancer/skin cancer/squamous cell carcinoma
/medical and health sciences/clinical medicine/oncology/cancer
/medical and health sciences/clinical medicine/oncology/cancer/breast cancer
/medical and health sciences/clinical medicine/oncology/cancer/prostate cancer
/medical and health sciences/clinical medicine/oncology/cancer/skin cancer

Programme(s)

Topic(s)

Call for proposal

FP7-HEALTH-2007-B
Funding Scheme
CP-IP - Large-scale integrating project

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<th>Admin Contact</th>
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<td>Spain</td>
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Last update: 16 July 2019
Record number: 91061

Permalink: https://cordis.europa.eu/project/id/222741

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